

Precast Concrete Utility Vaults

Installation Guidelines

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General Notes:

1. These installation procedures are for reference only and are not intended to be all inclusive. If the plans and specifications include installation procedures, then they take precedence.
2. Proper installation of precast vaults is vital to the finished product's structural integrity.
3. Vaults should be inspected prior to offloading to ensure the product is in good condition and no safety hazards exist that would prevent proper installation of the product.
4. The load rating of an underground utility vault and its hatch must be defined according to ASTM C1802, Table X1.1 shown on the next page

Site Conditions:

1. Site must be stable enough to handle large delivery trucks with ample room for them to maneuver close enough to the vault's desired location. (ASTM C891, Section 6.3)
2. Area must be free of any overhead obstructions that would limit safe installation of the vault (i.e., powerlines, branches, buildings, etc.). (ASTM C891, Section 3.2)
3. Area utilities should be given advanced notice of proposed excavation. (ASTM C891, Section 4.2)

Excavation:

1. Excavation must comply with all city, county, state and federal regulations, as it applies to safety. (ASTM C891, Section 5.1)
2. Special attention needs to be taken to ensure the excavated area can withstand the load being applied to it by the crane, boom truck or excavator so damage is not caused to the product, equipment or excavated area. (ASTM C891, Section 6.3)
3. Excavated areas should be 18 to 24 inches larger than the final footprint of the vault being installed (or at least wider than compaction equipment) if no one is required to be in the excavated area during setting. If the vault is large enough and a person is required to be in the excavation area during setting, refer back to the local agency for guidance.
4. Vaults must be placed on evenly compacted bedding with a thickness of 4 to 6 inches. Bedding should be free of large rocks or any obstructions that may put a point load on the base since cracking may occur once a load is applied. (ASTM C891, Section 8.5)

Assembly:

1. It is crucial that the vault or base slab be placed on level compacted soil. Contractors should make sure all four corners of the vault are level prior to placing more pieces. (ASTM C891, Section 8.5)
2. All joints must be free of debris and mastic should be used to ensure a watertight seal. (ASTM C891, Section 8.8)
3. Mastic comes in different grades and should match the application as per the supplier's recommendations.
4. Pay special attention when placing mastic. It should be placed in the location specified by the supplier and placed continuous around the corners and lapped by 6 inches whenever starting and stopping a new roll.
5. Never stack the mastic on top of each other as the adjoining mastic will not create a seal.
6. Grouting of all pipe penetrations should be done prior to backfilling.
7. It is good practice to grout interior joints if the vault is holding water and exterior joints if the vault is in a ground water situation.
8. Exterior joint wrap is also a good grouting alternative in ground water situations.
9. All grouting of interior joints should be done after backfilling is completed.



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Backfilling:

1. Backfill should be made up of good compactable material free of large rocks and debris. Ensure there are no voids. (ASTM C891, Section 9.2)
2. Backfilling should be done in uniform layers/lifts no larger than 12-18 inches around the vault. (ASTM C891, Section 9.4)
3. Vaults should be completely assembled prior to backfilling. Contact the supplier if you wish to deviate from common backfill procedures. (ASTM C891, Section 9.1)
4. Once backfilling is completed a visual inspection should be made to ensure the vault has not been damaged.

This document represents basic guidelines for installing underground precast concrete utility structures. Proper, safe installation is the sole responsibility of the installer. In some circumstances specific procedures may be required and should be discussed with the precast concrete manufacturer.

Table X1.1*

Load Level	Area of Use
Load Level 1	Light Pedestrian Load Restricted to walkways and other areas that are totally inaccessible to all vehicle traffic
Load Level 2	Pedestrian Load Restricted to pedestrian and light maintenance vehicle use and are inaccessible to all other vehicle traffic
Load Level 3	Light Vehicular Traffic Restricted to parking spaces accesible only to passenger vehicles and protected areas within close proximity of roadways
Load Level 4	Occasional Truck Traffic Restricted to parking spaces and protected areas within close proximity of roadways
Load Level 5	Off Street Truck Traffic Restricted to unrestricted parking lanes and alleyways where traffic speed is limited to 15 mph
Load Level 6	Two-lane Vehicular/Truck Traffic Restricted to two-lane streets with a maximum posted speed limite of 35 mph
Load Level 7	Full Traffic For use in multi-lane roadways with a maxiumum posted speed limit of 70 mph
Load Level 8	Occasional Aircraft Loads For use in unpaved runway safety zones only
Load Level 9	Aircraft Loads For use in taxiways and aprons, not for use in runways
Load Level 10	Special Equipment Loads Such as mining equipment, port equipment, cranes, and earth-moving equipment

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